

### ABSTRACT OF THE DISCLOSURE

A method for forming a giant magnetoresistive (GMR) sensor element, and a giant magnetoresistive (GMR) sensor element formed in accord with the method. In accord with the method, there is first provided a substrate. There is then formed over the substrate a seed layer formed of a magnetoresistive (MR) resistivity sensitivity enhancing material selected from the group consisting of nickel-chromium alloys and nickel-iron-chromium alloys. There is then formed over the seed layer a nickel oxide material layer. Finally, there is then formed over the nickel oxide material layer a free ferromagnetic layer separated from a pinned ferromagnetic layer in turn formed thereover by a non-magnetic conductor spacer layer, where the pinned ferromagnetic layer in turn has a pinning material layer formed thereover. The method contemplates a giant magnetoresistive (GMR) sensor element formed in accord with the method. The nickel oxide material layer provides the giant magnetoresistive (GMR) sensor element with an enhanced magnetoresistive (MR) resistivity sensitivity.